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ANNUAL ACCOUNTABILITY REPORT

Fiscal Year 1998-99

Public Service Activities
Clemson University

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STATE DOCUMENTS

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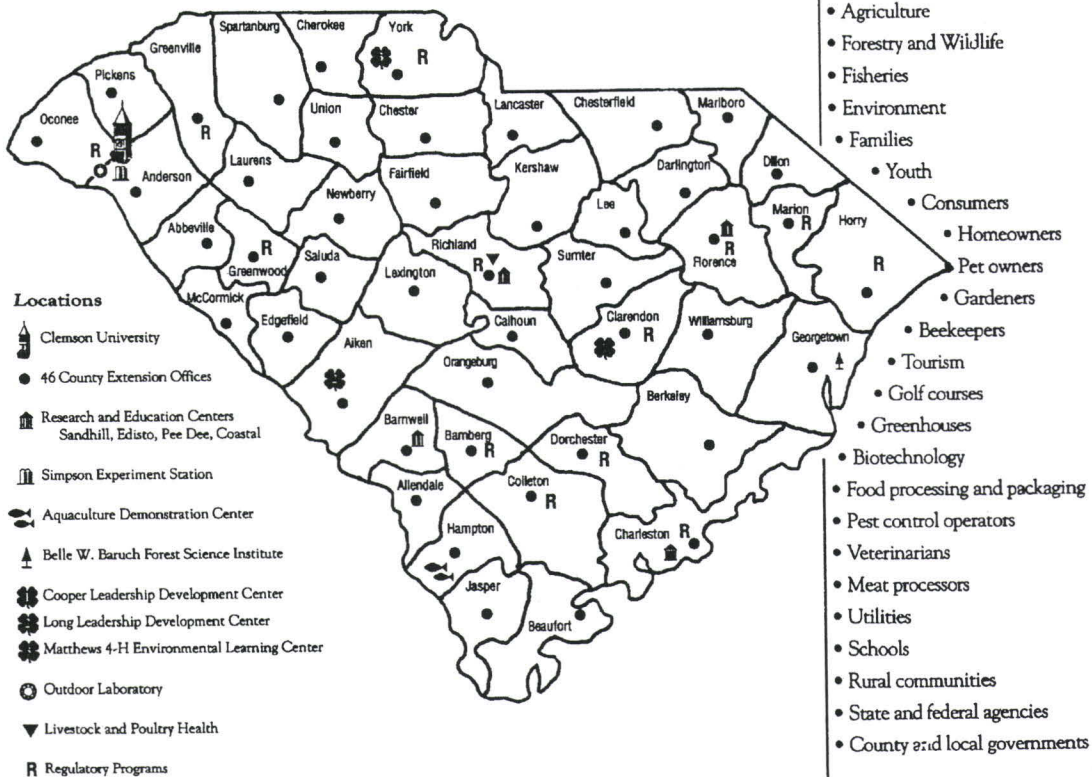
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The Mission of Public Service Activities

Meet the agriculture, family and youth, environmental and regulatory needs of the citizens of South Carolina.

CLEMSON
UNIVERSITY

Public Service Activities in South Carolina



Clemson University Public Service Activities

**Agriculture
& Forestry
Research**

**Cooperative
Extension
Service**

**Regulatory
& Public
Service**

**Livestock-
Poultry
Health**

**Bioengineering
Alliance**

**State Energy
Program**

Transmittal Message

We are very pleased to submit the 1998 - 1999 Annual Accountability Report for public service activities at Clemson University.

Clemson was founded in 1889 as a land grant institution with the three-pronged mission of teaching, research and Extension. Research and Extension are included under public service activities, as well as Livestock-Poultry Health Programs, Regulatory and Public Service Programs.

The mission of public service activities at Clemson was developed through extensive discussions with senior staff members and administrators of the university's public service programs, in conjunction with the Vice President for Public Service and Agriculture.

The performance measures for public service activities were developed as a result of a nationally recognized action plan to address key issues facing land grant universities. The Clemson action plan includes guidelines for determining the priorities and assessing the merit of public service activities, as well as sharing relevant information among faculty, administration and key constituents in a timely manner.

Data from this information management system, called the Clemson University Activities Information Management System, is included in this report.

We look forward to continuing to provide South Carolinians with the scientific information they need to improve their quality of life today and in the future. For more information, please contact Linda Martin at the address listed below.

Sincerely,

John W. Kelly
Vice President for Public Service and Agriculture

For questions concerning this report, please contact:

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Clemson University
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Phone: 864-656-5273 **Fax:** 864-656-2629 **Email:** lmrtn@clemson.edu

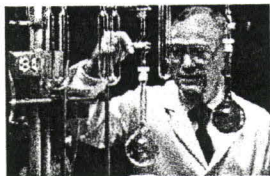
Executive Summary

Clemson University was established more than a century ago to provide education, to conduct research, and to serve as an information resource for the citizens of South Carolina.

Our state's education, research and information needs have changed dramatically over the years, and so have Clemson's approaches to improving the prosperity and quality of life of our citizens.

The university welcomes the opportunity to address the state's changing needs. Exciting solutions are being developed at Clemson to help South Carolinians face the challenges of today and prepare for the future. In order to address the state's changing needs, we have grouped our efforts around five major goals:

Goal 1 - Agrisystems Productivity and Profitability

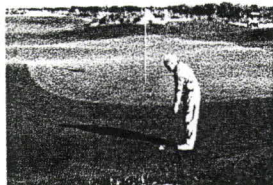


Clemson researchers, Extension specialists and regulatory agents are working with the state's agricultural and forestry producers to increase productivity and profitability so South Carolinians can compete successfully in an increasingly global economy. This includes financial planning, new technologies and agricultural systems, and management programs for limited-resource farmers.

Other efforts include using biotechnology to develop crops that are naturally resistant to disease and insect damage for higher yields and better quality. In addition, alternative construction materials, such as bamboo and laminated wooden beams, are being developed to improve the productivity and profitability of the forestry industry.

Other efforts include research projects to identify environmentally friendly and economically viable production methods and waste management strategies for livestock, food, fiber and forestry producers.

Goal 2 - Economic and Community Development



Thomas Green Clemson's gift to the state of South Carolina was intended to help the state's citizens improve the quality of their lives. That legacy continues through Palmetto Leadership, a program that prepares local community leaders to bring jobs, new businesses and a more appealing downtown to rural communities throughout the state. In addition, economic development alternatives are identified and pursued in partnership with the S.C. Department of Commerce and the S.C. Downtown Development Association.

The Strom Thurmond Institute at Clemson provides scientifically based information to help local, county and state leaders in strategic planning and policy making. And Clemson economists, sociologists and urban planners are working with local communities to develop transportation systems that match workers in rural areas with jobs in urban areas.

Goal 3 - Environmental Conservation



Protecting and enhancing South Carolina's natural resources are vitally important for the quality of life in our state, as well as for future economic development potential.

To this end, Clemson researchers, Extension agents and regulatory personnel are working with partners around the state to enhance our forests and wildlife populations and to ensure the safe and effective use of fertilizers and pesticides.

Programs have been developed to recycle waste for the hotel industry, recycle water for commercial plant nurseries, and recycle empty pesticide containers for farmers and pest control operators. The Master Waste Educator program also teaches community volunteers how to dispose of solid waste through recycling.

Water quality continues to be assessed for the livestock industry and the state's golf courses to ensure minimal environmental impact. In addition, management strategies are being developed to enhance the economic growth of agriculture and forestry, while minimizing their environmental impact.

Goal 4 - Food Safety and Nutrition



The United States has the safest, most affordable and most reliable food supply in the world, largely because of the contributions of land-grant universities such as Clemson. Clemson regulatory agents work closely with South Carolina producers to ensure that the state's meat, poultry and plant crops meet all federal and export safety requirements. Other food safety activities include profiling ongoing training in safe food handling practices for individuals, restaurants and commercial food processors to prevent outbreaks of food-borne illnesses.

In addition, the Expanded Food and Nutrition Education Program (EFNEP) teaches low-income individuals from preschool to senior citizens how to prevent health problems through better diet and nutrition. And lunchroom personnel in schools and child-care facilities are being trained in nutrition and safe food-handling practices to ensure that healthful food is served to our children.

Plant scientists at Clemson are also studying the ingredients in plants that can be used against cancer and other diseases. Plants being investigated include ginkgo, Saint John's wort, goldenseal, raspberry and Echinacea.

Goal 5 - Youth Development



Strengthening the support for families and young people is becoming a major focus for South Carolina, making ongoing family and youth development programs conducted by Clemson increasingly important. The 4-H camps and local programs play a major role in teaching youth and adults necessary life skills, such as resolving conflict and becoming informed consumers. Families are also learning skills to help them focus on their strengths and learn to cope with changes and transitions in their lives through 4-H and Extension programs.

Elementary and middle school children are learning an appreciation for our state's natural resources through Teaching Kids About The Environment, a joint project with state, civic and corporate partners conducted at the 4-H leadership centers. And first-time juvenile offenders are being given a second chance through the Outdoor Youth Development Program provided by the 4-H leadership centers in conjunction with the S. C. Department of Juvenile Justice.

The role of public service at Clemson University is to improve the economic prosperity and the quality of life for South Carolina's citizens. This role is carried out by way of the following six organizations/divisions:

- **Agriculture and Forestry Research System**
Develops relevant, unbiased, research-based knowledge for agriculture, natural resources and the rural environment to enhance economic development
- **Cooperative Extension Service**
Transfers scientifically based information to individuals, groups and communities, and help them apply that information to improve the quality of their lives.

- **Livestock-Poultry Health Program**
Ensures the safety and health of livestock and poultry produced in South Carolina, as well as the health of companion animals and wildlife.
- **Regulatory and Public Service Programs**
Ensures the quality of seeds and plants produced in South Carolina and the availability and safe, effective use of fertilizers and pesticides.
- **Bioengineering Alliance**
Promotes biomedical engineering education and research between Clemson University, the University of South Carolina, and the Medical University of South Carolina.
- **State Energy Program**
Coordinates and manages energy research throughout South Carolina and works closely with federal agencies and private industry.

These organizations work closely together, with daily scientific and staff interaction. With the exception of the Livestock-Poultry Health Program, which is located in Columbia, the PSA organizations are adjacent to each other on the Clemson campus and at the four Research and Education Centers (RECs) around the state. In addition, there is an extensive network of Cooperative Extension offices, with 53 locations around the state, including an office in each county.

Working relationships are maintained with other state agencies, such as the Department of Commerce, Department of Health and Environmental Control, Department of Agriculture, Technical Education colleges, Forestry Commission, Department of Natural Resources, as well as local and federal agencies. We continue to insist that our organizations/divisions work together and with other agencies and departments to assure that our efforts are never duplicated and funds are not needlessly spent. To this end we have developed and implemented an extensive accountability model that is now recognized as one of the best systems of the land-grant colleges. This system is called CU-AIMS or Clemson University Activity Information Management System.

CU-AIMS was developed by our faculty as a way to focus our research, extension, and regulatory efforts around the five major goals of PSA. Although the system relies heavily on computer technology and data gathering systems, it is much more than a computerized accountability system. It is a philosophy in which our efforts can be better directed to solve the basic needs of our state, nation and the world. The effort to solve our state's problems starts with our stakeholders and continues through our faculty by way of our research program and is delivered to our stakeholders by way of our Extension Service or regulatory agencies. In order to do this, our research scientists and extension agents have formed programs. These programs are problem areas that are much more specific than our goals; i.e. the Fire Ant Program. Once formed, these programs can address the issues relative to the specific program, research the problem, and deliver the results to the public by way of our Extension Service or regulatory organization. All this activity and results are monitored and stored in the CU-AIMS system.

Division Mission Statements

South Carolina Agriculture and Forestry Research System

Develops relevant, research-based knowledge for agriculture, natural resources and the rural environment to enhance economic development.

South Carolina Cooperative Extension Service

Transfers scientifically based information to individuals, groups and communities to help improve the quality of life.

Regulatory and Public Service Programs

To ensure the safety and health of plants produced in South Carolina and certifies the safe and effective use of chemicals in agriculture and home pest control.

Livestock-Poultry Health

To ensure the safety and health of livestock and poultry produced in South Carolina, as well as the health of companion animals and wildlife.

Bioengineering Alliance

To promote unified bioengineering education and research in South Carolina

South Carolina Energy Res. & Development Center

To promote energy research and development in and for the state, to transfer energy technology developed by others to South Carolina applications, to contribute to national energy issues in areas of excellence, and to promote statewide energy education activities.

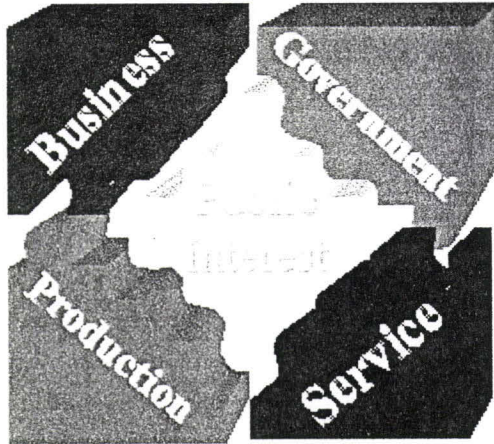
The mission statements of each division reflect the overall purpose of each division and how they must interact with each other to fulfill the mission of Public Service Activities (see PSA mission statement on page 3). Each division relies upon the other for a specific purpose to better solve the needs of the State. The South Carolina Agriculture and Forestry Research System performs the research to solve the need that has been proposed by our stakeholders. The Extension Service works with our stakeholders to identify the need or problem and then assures that the solution(s) are communicated and practices adopted. The Regulatory and Livestock-Poultry Health monitor and, in some cases, oversee the practices to assure compliance. This system is highly efficient and productive in that it addresses all aspects of problem solving and implementation.

Leadership System

The structure of Clemson Public Service Activities follows the basic structure of most organizations (see diagram on page 3). We have six main divisions reporting directly to the Vice President for Agriculture and Public Service. This organization has become more diversified and proactive than in years past. Although much of its activities still center around agriculture-related problems, public demand and socioeconomic needs have directed our expertise in other areas such as the environment and youth development. These new directions are a direct result of our “listening” to our stakeholders -- the citizens of South Carolina.

Although each division of Public Service Activities uses very distinct methods of working with their own stakeholders and customers, Public Service Activities has its own Advisory Board with

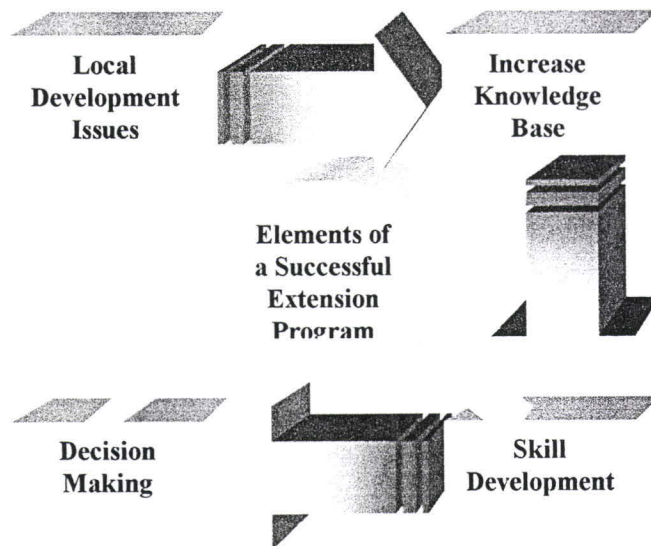
PSA Advisory Board Representation



representation from areas that will better help us direct and implement programs to benefit South Carolina. This board is charged with the following:

- Review objectives and planning documents
- Provide advice and counsel on the development and identification of new programmatic areas and centers of excellence
- Be a communication bridge with other cultural, social, and professional leaders of the local community, state, region, and nation
- Assist in development of increased resources and facilities
- Promote within and outside of their own professional area strong image of research accomplishments

Unlike many agencies, Public Service Activities has a division whose sole purpose is to benefit/serve the citizens of South Carolina -- the Extension Service. Much of what we do in the other divisions comes from our stakeholders working with our Extension agents. But the process is much more formal than that. The chart to the right shows what goes into making a successful Extension program. Starting with learning the local issues and then finding the knowledge and skills necessary to address the issues and to deciding how best to establish a program, Extension programs are fully studied before implementation. It is because of this type of process that Extension has been as successful as it has in meeting the needs of South Carolina and its citizens.



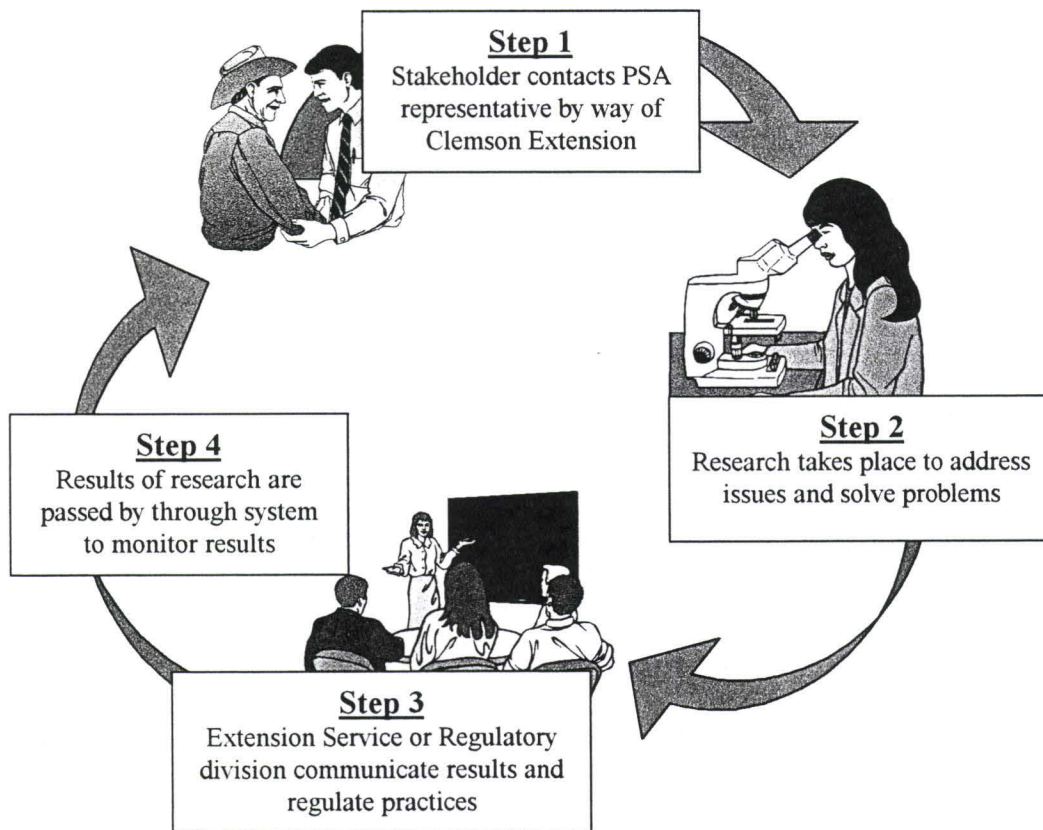
Research uses a somewhat different method to evaluate needs and direct research activities where needed. Unlike The Extension Service whose focus is on the dissemination of knowledge where needed, The South Carolina Agriculture and Forestry Research System is in the business of developing knowledge through creative research. But in order for this process to work properly, both divisions must work closely together to understand the needs of stakeholders. To assure that research is working on issues it should be, a thorough review is required to approve all research projects. This starts out by setting up programs for research that fit the goals of PSA. Each program is developed by seeking input from faculty and stakeholders then assuring that the program meets three basic criteria: Relevance, Capacity, and Impact. If the program does not meet these criteria, it does not get funded.

Customer Focus and Satisfaction

Customer focus and satisfaction is an essential component of Public Service Activities. If not, we would not exist. Our organization may be one of the best examples of how to work with customers/stakeholders. PSA was organized to serve people by first working with them to learn about the problems, then researching the problem to find solutions and then getting this information (knowledge) to the people that need it. The South Carolina Agriculture and Forestry Research System in cooperation with other state agencies and divisions, develops the knowledge and passes this information on to the Extension Service. The Extension Service uses this knowledge to solve the problem and also feeds the states needs back to the research divisions (see problem-solving flow chart below). The system has worked well for years and should continue to work even better with a more focused goal-oriented approach to solving problems.

With this link to the public we are able to get the most feedback about how our practices are being accepted by the public and whether or not we need to direct our activities in another direction. Therefore, many of our performance indicators are from the Extension Service operations. Performance indicators on research are ambiguous and, in many cases, not reflective of the hours and work performed.

TYPICAL PROBLEM SOLVING TECHNIQUE OF PSA



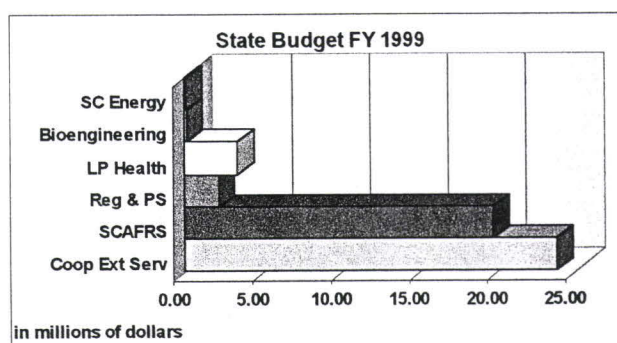
Public Service Activities

Mission: *Meet the agriculture, family and youth, environmental and regulatory needs of the citizens of South Carolina*

Goals: **Agricultural productivity and profitability**
Economic and community development
Environmental Conservation
Food safety and nutrition
Youth development

Public Service Activities at Clemson University is divided among several organizations that deal with very specific areas of expertise or problems. These areas, with their state, are listed below:

Program Name	Budget FY 1999
Coop Extension Service	23,719,616
SC Agr & Forestry Res Sys	19,659,040
Regulatory & Public Service	2,195,777
Livestock-Poultry Health	3,385,037
Bioengineering Alliance	143,159
State Energy Program	113,640



Through the combined efforts of research, extension, and regulatory support, South Carolina's agricultural producers have learned the value of crop rotation, soil conservation, fertilization, and variety selection. Now, our focus is moving into areas such as biotechnology, integrated pest management and alternative enterprises to help our state's rural economy remain viable in an increasingly competitive world. In addition, increased emphasis is being placed on environmental issues such as water quality and livestock, waste management, a renewed focus on developing rural leadership for both youth and adults, providing economic development opportunities for residents of rural areas, ensuring a safe food supply, promoting nutrition, protecting the health of humans and animals, and setting safe standards for effective use of pesticides.

The following pages illustrate the main divisions within PSA and how their performance is being measured. You will notice that the goals for each division are identical. This is because all of PSA has adopted a common set of program goals by which we must classify all our activities. If the activity does not fit within any of our goals, the activity will probably not be undertaken. This better focuses our efforts on issues of importance to South Carolina and reduces unnecessary or ambiguous activity.

Program Title: **South Carolina Agriculture and Forestry Research System**

Program Description: The South Carolina Agriculture and Forestry Research System, based at Clemson, is part of an international network of scientists working to develop unbiased, research-based knowledge for agriculture, natural resources, and the rural environment to enhance economic development and the quality of life for all people. Clemson researchers are making break-through discoveries in plant biotechnology, food safety, ornamental horticulture, packaging science, aquaculture, and the environment, while continuing to improve production agriculture and forestry.

Agriculture and Forestry Research at Clemson University is in the process of moving towards a program-based reporting system. Currently, significant portions of research activities are being conducted in these research programs.

Program Cost:	State:	\$19,659,040
	Federal:	\$ 2,445,659
	Earmarked:	
	Other:	<u>\$ 2,792,987</u>
	Total:	\$24,897,686

PSA Program Goals: **Agricultural productivity and profitability**
Economic and community development
Environmental Conservation
Food safety and nutrition
Youth development

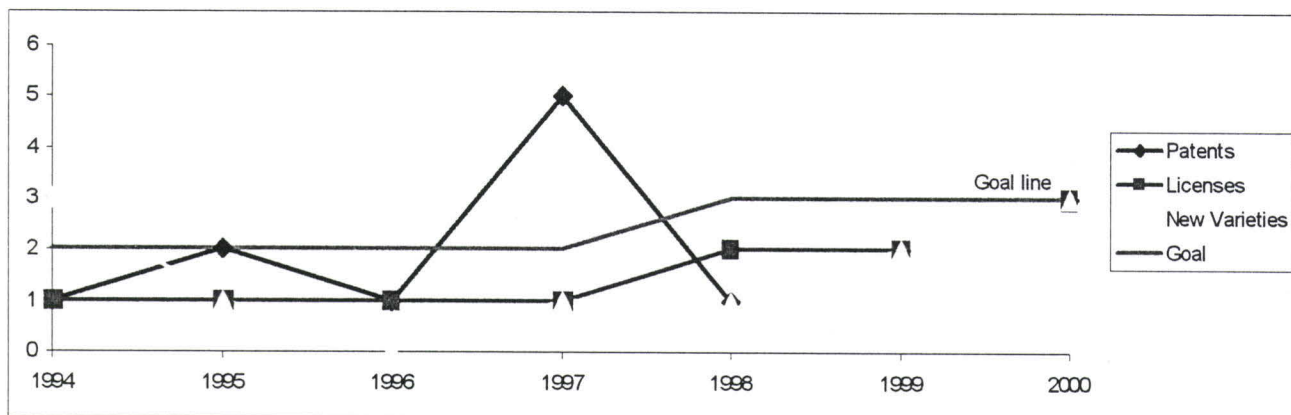
Program Objectives:

- Increase the use of biotechnology to enhance specific characteristics of crop plants at the molecular level
- Expanding current and emerging technologies, such as satellites and computers, to improve the productivity, profitability, and competitiveness of the state's agriculture and forestry industries.
- Increase the growth in the production of nutraceutical and horticultural products.
- Exploration of renewable energy sources produced by crop plants.
- New approaches to communicating research discoveries to producers, processors, and distributors.

Program Results:

Measuring the performance of research is difficult at best. Our best measurements of how well we are doing are generally the number of patents, licenses, and new varieties we produce. The following chart and graph reflect a small portion of the information we are currently collecting but it does reflect much of what we consider as meaningful measures of productivity. As our programs become better developed, more areas of measuring productivity will be collected and reported.

	1994	1995	1996	1997	1998	1999	2000(goal)
Patents	1	2	1	5	1	2	3
Licenses	1	1	1	1	2	2	3
New Varieties	3	1	0	1	1	2	3
Goals	2	2	2	2	3	3	3



Program Title: **South Carolina Cooperative Extension Service**

Program Description: Clemson Cooperative Extension implements educational programs which address critical issues and needs through: (1) state of the art technologies for program delivery; (2) a diverse, proficient and visionary staff; (3) an accessible information system; (4) effective linkages with researchers; (5) strong linkages and collaboration with other agencies and organizations both within and outside the land-grant system; and (6) an effective award and reward system that recognizes employee achievement at all levels.

Base programs of the state and of the nationwide Cooperative Extension System drive our four-year (1997-2001) statewide Extension plan of work. The statewide plan includes broad parameters for program development by both university and county faculty. In addition, Extension advisory boards and program identification committees also had input to the statewide plan of work. The statewide plan of work contains five PSA goals, 16 initiatives, and 70 projects, covering a variety of topics and programs that address the needs South Carolina citizens.

Program Cost:	State:	\$23,719,616
	Federal:	\$ 7,170,616
	Earmarked:	
	Other:	\$ 4,911,349
	Total:	\$35,800,999

PSA Program Goals: **Agricultural productivity and profitability**
Economic and community development
Environmental Conservation
Food safety and nutrition
Youth development

Program Objectives: ➤ Foster the improvement of agriculture, agricultural products and related industries
➤ Improve the management of natural and environmental resources (including forest, wildlife and marine)
➤ Strengthen the family as individuals and as a unit
➤ Foster the development of youth
➤ Enhance rural and community development
➤ Develop human resources (including leadership and citizenship)
➤ Fulfill national and/or state mandated programs

Program Results:

The Cooperative Extension Service is in the second year of implementing a comprehensive accountability system. The first year's figures reflect only partial participation by our agents and thus comparing last year's totals with this years totals proved to be without merit. Therefore, no data was presented over time for this analysis. The following year should better reflect comparative data.

Cooperative Extension Service, Clemson University									
Summary of Planned Time, Reported Time, and Contacts for CUMIS FY July 1, 1998 – June 30, 1999									
Goals	Planned	Reported	White Males	White Females	Black Males	Black Females	Other Males	Other Females	Total Contacts
<i>Agrisystems Productivity and Profitability</i>	4,335	5,604	31,619	7,687	6,575	1,640	295	122	47,638
<i>Economic and Community Development</i>	9,421	11,748	64,739	80,363	22,996	31,041	3,087	2,391	204,617
<i>Environmental Conservation</i>	8,911	11,047	111,169	50,427	31,157	19,435	4,438	4,872	221,498
<i>Food Safety and Nutrition</i>	4,290	5,462	11,991	22,134	13,311	20,806	351	557	69,150
<i>Youth Development</i>	7,114	8,294	42,491	58,132	32,641	39,688	490	578	174,020
Totals:	34,072	42,155	261,709	218,743	106,680	112,610	8,661	8,520	716,923

Summary of Accomplishment Indicators 1-4 for PSA Goals				
Goals	Indicator #1	Indicator #2	Indicator #3	Indicator #4
<i>Agrisystems Productivity and Profitability</i>	1,174	19,398	13,370	7,623
<i>Economic and Community Development</i>	5,578	76,937	56,190	23,076
<i>Environmental Conservation</i>	3,491	45,553	33,846	11,922
<i>Food Safety and Nutrition</i>	2,533	32,193	24,173	8,311
<i>Youth Development</i>	4,459	82,605	49,647	16,737
Totals	17,235	256,686	177,226	67,669

Indicators for above chart:

Indicator #1 – Number of activities and programs conducted

Indicator #2 – Number of people completing non-formal education programs

Indicator #3 – Number of participants reporting increased knowledge.

Indicator #4 – Number of participants adopting or increasing uses practices.

Program Title: **Regulatory and Public Service Programs**

Program Description: The Division helps protect the quality of life in South Carolina by promoting a safe environment; by assuring that fertilizers, pesticides and seed meet standards that enhance efficient and profitable crop production; by enforcing quarantines and other regulations that protect South Carolina agriculture from certain weeds, insects, and diseases; and by ensuring safe use of pesticides. These activities support PSA's Goal regarding agrisystems productivity and profitability and environmental conservation. Recognizing that compliance with regulations is enhanced by a strong educational approach, the Division maintains close coordination with Clemson University Cooperative Extension Service and the South Carolina Agriculture and Forestry Research System.

Program Cost:	State:	\$2,195,777
	Federal:	
	Earmarked:	
	Other:	<u>\$1,067,289</u>
	Total:	\$3,263,067

PSA Program Goals: **Agricultural productivity and profitability**
Economic and community development
Environmental Conservation
Food safety and nutrition
Youth development

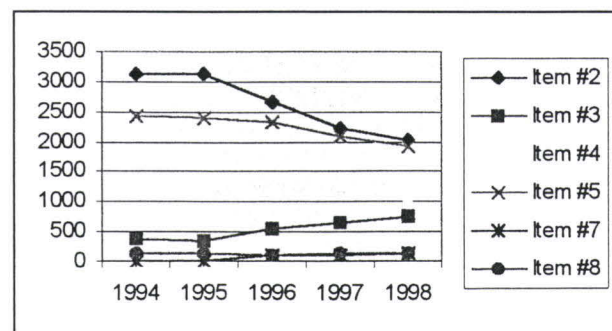
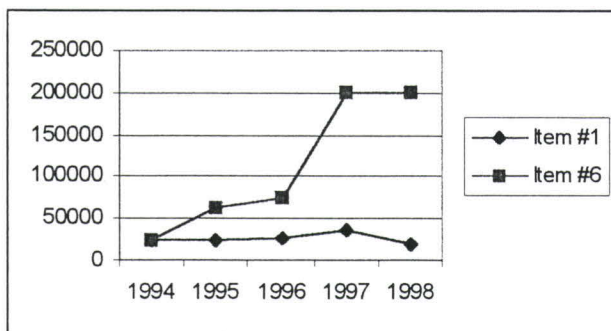
Program Objectives:

- To develop informational material which would concisely identify Regulatory Services' mission; locations, both physical and electronic; and publicize venues to facilitate contact with Regulatory Services by legislators, sister agencies, other units at Clemson University, the regulated community, and other stakeholders.
- Continue education, survey, and eradication efforts to rid SC of Tropical Soda Apple.
- Increase participation in Quality Assurance and Identify Preserved programs by seed companies producing and marketing crop varieties with value-added traits.
- To develop and begin implementation of an Integrated Pest Management Program for schools to maximize the use of non-chemical controls where appropriate and the safe use of pesticides when necessary in order to decrease potential exposure of children to residues.

Program Results:

Extensive data is collected to measure activities at this division. If additional data are needed, please contact this division's office for details. No goals or benchmarks have been determined.

Item	Type of Measure	Output
#1	The total number of acres inspected and units of seed certified under certification and other Quality Assurance (QA) programs. Acreage has stabilized after several years of decline. Result: Seed Certification and QA programs increase agriculture productivity and profitability.	18,386 acres 465,497 units
#2	The number and deficiency rate of fertilizer and lime samples procured and analyzed to determine the compliance with label guarantees. Result: Farmers are reimbursed for deficient samples. This enhances agricultural productivity and the reimbursement provides equity to growers for monies spent for higher expected percentages of fertilizer and lime	2,018 13.68% deficiencies
#3	The number of inspections required in addition to certification inspections conducted to certify plant/commodity shipments (transplants, nursery stock, seed, lumber) intrastate, interstate and globally. Result: This certification then allows the shipment of these materials. Shipments enhance the marketing and profitability of SC agricultural business.	757 inspections
#4	The number of inspections conducted of commercial greenhouses, nurseries, turf/sod farms and vegetable transplant producers for insect and disease detection. Result: Plant material shipped and sold within SC and nationally is free of insects and disease. This enhances agricultural productivity.	999 inspections compliance rate 97.9%
#5	The number of inspections conducted to assure proper pesticide use. Result: The environment and human health is protected from pesticide use. Agricultural productivity is enhanced due to continued availability of pesticides that allow commodities production. Cancellation of those pesticides by the EPA would occur if not adequately regulated and used according to label directions.	1,925 inspections 64.2% compliance
#6	The number of pesticide containers recycled. Result: Every single pesticide container recycled is one less container that ends up by the roadside or in landfills.	200,000 containers
#7	The number of public schools inspected for compliance with pesticide regulations. Result: School children's health and the school environment is protected from unnecessary pesticide use.	122 95.9% compliance
#8	The number of groundwater samples procured and analyzed for pesticide and nitrite contamination. Result: Less than 4% of groundwater samples are contaminated with pesticides. This monitoring and regulatory program protects SC residents' health and the environment from groundwater contamination	118 samples 1% Detection



Program Title: **Livestock-Poultry Health**

Program Description: The Livestock-Poultry Health Program protects the state's \$1.6 billion livestock, poultry and companion animal industry by providing the most concentrated source of specialized veterinary and animal health consultants in South Carolina. Their efforts protect the health of both animals and humans.

As a result of this activity, South Carolina is free of diseases such as brucellosis and tuberculosis in cattle, as well as cholera and pseudorabies in hogs and pullorum in chickens, which have caused extensive losses in the past. In addition, the rate of equine infectious anemia has been reduced by more than 50 percent.

Meeting federally mandated regulations through the Livestock-Poultry Health Program has far-reaching, positive effects on many components of South Carolina's economy. The state meat inspection program prevents severe economic losses to many small meat-processing plants located primarily in rural areas. Livestock and poultry health inspections prevent disease outbreaks that would paralyze South Carolina's animal industries by halting interstate and international sales and shipment of animals. The animal disease surveillance program helps to protect the health of both humans and animals.

Program Cost:	State:	\$3,385,037
	Federal:	
	Earmarked:	
	Other:	\$ 531,850
	Total:	\$3,916,888

PSA Program Goals: **Agricultural productivity and profitability**
Economic and community development
Environmental Conservation
Food safety and nutrition
Youth development

Program Objectives: Program objectives have not been established at this time.

Program Results: Program results have not been collected at this time. On-the-other-hand, many are tabulated in with other program's results.

Program Title: **Bioengineering Alliance**

Program Description: The Bioengineering Alliance of South Carolina is a unique State program that promotes biomedical engineering education and research between Clemson University, the University of South Carolina, and the Medical University of South Carolina. The Alliance shares faculty, research facilities, and other resources to foster interdisciplinary research between the participating campuses.

The Alliance has a long-term development strategy for transferring medical technology from our state research institutions to high technology companies and the marketplace and thereby enhancing state economic development. The Alliance has an ongoing demonstration project to apply the emerging technologies of artificial intelligence, computer-aided design, and computer-aided manufacturing to problems in orthopedic prostheses development and manufacture. We are developing a system for the real-time design and manufacture of custom implantable devices. The development and commercialization of such a system could have a significant economic impact on industry within South Carolina and could potentially revolutionize the orthopedic product industry by making pre-fabricated devices obsolete.

Program Cost:

State:	\$143,159
Federal:	
Earmarked:	
Other:	_____
Total:	\$143,159

PSA Program Goals: **Agricultural productivity and profitability**
Economic and community development
Environmental Conservation
Food safety and nutrition
Youth development

Program Objectives: Program objectives have not been established at this time

Program Results: Program results have not been collected at this time. On-the-other-hand, many are tabulated in with other program's results.

Program Title: State Energy Programs

Program Description: The South Carolina Energy Research and Development Center (SCERDC) is a state chartered research and development organization established in 1981 via the S.C.-82 General Appropriations Act.

The SCERDC is the only chartered energy research group within South Carolina located at a University. The dual mission of technology development and education makes housing SCERDC at Clemson University ideal. SCERDC has immediate access to a large expert technical staff on an as needed basis. The SCERDC in-house staff provides complete project management capabilities including assistance with proposal preparation, contract writing, financial accounting, and technical coordination for large interdisciplinary projects. SCERDC may interact with all departments at Clemson University, all colleges within South Carolina, state agencies, federal agencies, and private industry throughout the nation.

Program Cost:	State:	\$113,640
	Federal:	
	Earmarked:	
	Other:	_____
	Total:	\$113,640

PSA Program Goals: **Agricultural productivity and profitability**
Economic and community development
Environmental Conservation
Food safety and nutrition
Youth development

Program Objectives: ➤ To promote energy research and development I and for the state
➤ To transfer energy technology developed by others to South Carolina applications
➤ To contribute to national energy issues in areas of excellence, and
➤ To promote state-wide energy education activities

Program Results: Program results have not been collected at this time. On-the-other-hand, many are tabulated in with other program's results.

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